



WILD Kids



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Threats to Native Fish

For thousands of years, Arizona's native fish adapted to life in diverse habitats, ranging from small springs to the raging torrents of the Colorado River. Their ability to adjust to periods of drought and flash floods was the key to their survival. But, native fish did not adjust so well to habitat loss and introduction of non-native

species. In fact, nearly half of Arizona's 33 *extant* native fish species are currently listed as threatened or endangered. But there is reason to be optimistic. Biologists and researchers are making great efforts to reintroduce native fish species, improve their habitat, and control movement of non-native fish species.

Habitat Loss

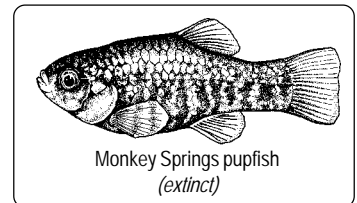
A number of changing conditions contributed to the loss of habitat for native fish. One was the construction of dams. Before dams, rivers like the Colorado were free flowing. Native fish adapted to the strong currents, seasonal floods, changing temperatures, and nutrient rich water of free flowing rivers. With the construction of dams, major habitat changes took place.

First, dams create a barrier for native fish that migrate long distances to breed and spawn (lay eggs). Prior to construction of dams, the Colorado River pikeminnow, formerly known as the Colorado squawfish, traveled up to 100 miles upstream to its spawning grounds. Today, dams block migration routes.

Second, dams create reservoirs, which increase the surface area of water, resulting in increased evaporation. Finally, dams affect water temperature. The water at the top of the reservoir is heated by the sun and warms up. The water at the bottom of the reservoir does not receive heating and becomes colder. When cold water is released from the dam, it affects organisms downstream. Native fish do poorly in these conditions, but many introduced species, like rainbow trout, do quite well in this environment.

The creation of canals, to divert water from rivers, and groundwater pumping have also contributed to loss of habitat for native fish. As human population numbers increase, so do water demands. To meet water needs for

irrigation and other human uses, water is pumped out of the ground, lowering the water table. As the water table subsides, ponds, streams, and cienegas (marsh-like areas) dry up. Native fish, like the Gila topminnow and desert pupfish that inhabit ponds and springs, are now listed as endangered.



Monkey Springs pupfish
(extinct)

Introduction of Non-native Species

People, often with good intentions, have introduced game or bait fish species from elsewhere into streams, ponds, and springs in Arizona. Introduced non-native species in general are better adapted to aquatic environments that have been modified by humans. This has had a detrimental effect on some native fish species that were already struggling with the habitat changes previously mentioned. In effect, the non-native species out-compete, hybridize with, or prey on native species. Other non-native species, such as crayfish and bullfrogs, prey on native fish and can also spread disease.

Contaminants

The addition of contaminants, including certain pesticides, into ecosystems can be harmful to aquatic species. The effects of some pesticides may become more concentrated, and more damaging, to animals higher in the food chain. Heavy metals, from mining, and acid precipitation can also harm aquatic wildlife.

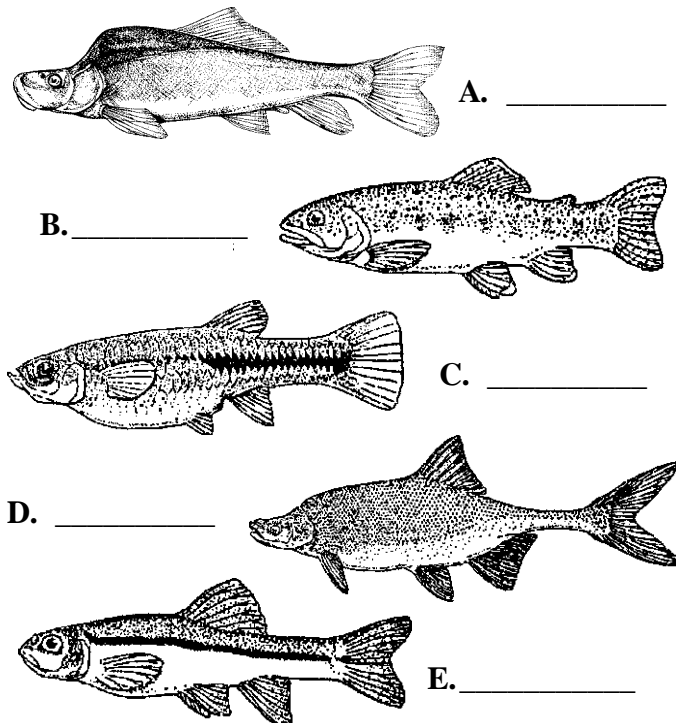
Name That Native!

A **dichotomous key** is a resource that many people use to classify species. Dichotomous refers to “the division into two usually contradictory parts or categories.” A dichotomous key works through a series of “*either/or*” statements. You must choose which one of a pair of statements refers to the species you are trying to identify. At the end

of each statement is a number or name. The number refers to the next set of statements you need to look at. Keep working your way down the sets of statements until you have reached one that gives you the name of the species you are identifying. Write the name of each fish on the line beside it.

Dichotomous Key

1. Distinct hump on back 2
1. No distinct hump on back 3
2. Dorsal fin (top one) longer than anal fin
(fin on bottom, just before tail) RAZORBACK SUCKER
2. Dorsal fin the same length or
shorter than anal fin BONYTAIL CHUB
3. Adult with a stripe on its side 4
3. Adult without a stripe on its side 5
4. Tail forked LONGFIN DACE
4. Tail not forked, but rounded GILA TOPMINNOW
5. Small adipose fin (between dorsal fin and tail) absent .. 6
5. Small adipose fin present GILA TROUT



Where Are They Now?.....

1. On the map, locate and label the following rivers:
Colorado, Little Colorado, Gila, Salt, Verde, Santa Cruz, and San Pedro.
2. Locate and label the following dams: Hoover Dam, Davis Dam, Parker Dam, Imperial Dam, Horseshoe Dam, and Roosevelt Dam.
3. Use the library, internet, or other resources, such as the Arizona Game & Fish Dept. Fishing Regulations, to:
 - a). Find out the historical range and the current range of: the razorback sucker, Colorado pikeminnow, bonytail chub, roundtail chub, and Apache trout.
 - b). Find the current status (*endangered*, *threatened*, or *common*) of each of the fish listed in 3a?
 - c). Determine the threats to each fish that is listed as *threatened* or *endangered*?

